

1. (Four Times Amended) A semiconductor structure comprising:

an electrically conductive interconnect disposed within a first dielectric layer, said electrically conductive interconnect having an upper surface and comprising a metal;

a passivation layer upon said upper surface, said passivation layer comprising the chemical structure M-N-H_x, where M represents the metal of the interconnect; and

an interlayer dielectric upon said first dielectric layer and upon said upper surface, said interlayer dielectric being continuously adhered to said upper surface;

wherein the passivation layer substantially covers the upper surface of the interconnect in order to chemically protect about 1-1,000 atomic lattice layers thereof.

7. (Four Times Amended) A semiconductor structure comprising:

an electrically conductive interconnect having an upper surface and being disposed within a dielectric layer, said electrically conductive interconnect including:

a titanium liner layer disposed within a depression in said dielectric layer;

a titanium nitride layer disposed upon said titanium liner layer; and

a tungsten film disposed upon said titanium nitride layer and filling said depression;

a first passivation layer comprising a tungsten nitride compound and being disposed upon said upper surface;

a second passivation layer comprising multiple layers of nitrogen compounds adsorbed upon said first passivation layer according to Brunauer's Type V adsorption; and

an interlayer dielectric disposed upon said dielectric layer and upon said upper surface, said interlayer dielectric being continuously adhered to said upper surface; wherein the first and second passivation layers substantially cover the upper surface of the interconnect in order to chemically protect about 1-1,000 atomic lattice layers thereof.

8. (Four Times Amended) A semiconductor structure comprising:

an electrically conductive interconnect disposed within a dielectric layer, said electrically conductive interconnect having an upper surface and including:

a titanium liner layer disposed within a depression in said dielectric layer;

a titanium nitride layer disposed upon said titanium liner layer; and

a tungsten film disposed upon said titanium nitride layer and filling said depression;

a passivation layer upon said upper surface and comprising nitrogen adsorbed upon said upper surface according to Brunauer's Type V adsorption; and

an interlayer dielectric upon said dielectric layer and upon said upper surface, said interlayer dielectric being continuously adhered to said upper surface;

wherein the passivation layer substantially covers the upper surface of the interconnect in order to chemically protect about 1-1,000 atomic lattice layers thereof.

9. (Four Times Amended) An interconnect in an electronic device comprising:

a metallic first structure disposed within a first silicon oxide layer, said metallic first structure having an upper surface;

a passivation layer upon said upper surface, said passivation layer formed by exposing said upper surface to a plasma consisting essentially of a nitrogen-containing silane; and

a second silicon oxide layer disposed upon said first silicon oxide layer and upon said upper surface, said second silicon oxide layer being continuously adhered to said upper surface;

wherein the passivation layer substantially covers the upper surface of the metallic first structure in order to chemically protect about 1-1,000 atomic lattice layers thereof.

15. (Four Times Amended) An interconnect in an electronic device comprising:

a metallic structure disposed within a first silicon oxide layer, said metallic structure having an upper surface and including:

a titanium liner layer disposed within an interconnect corridor in said first silicon oxide layer;

a titanium nitride layer disposed upon said titanium liner layer; and

a tungsten film disposed upon said titanium nitride layer;

a first passivation layer disposed upon said upper surface and comprised of a tungsten nitride compound;

a second passivation layer comprising nitrogen disposed upon said first passivation layer; and

a second silicon oxide layer disposed upon said first silicon oxide layer and upon said upper surface, said second silicon oxide layer being continuously adhered to said upper surface;

wherein the first and second passivation layers substantially cover the upper surface of the interconnect in order to chemically protect about 1-1,000 atomic lattice layers thereof.

16. (Four Times Amended) An interconnect in an electronic device comprising:
- a metallic structure disposed within a first silicon oxide layer, said metallic structure having an upper surface and including:
 - a titanium liner layer disposed within an interconnect corridor in said first silicon oxide layer;
 - a titanium nitride layer disposed upon said titanium liner layer; and
 - a tungsten film disposed upon said titanium nitride layer;
 - a passivation layer disposed upon said upper surface and formed by exposing said upper surface to a plasma consisting essentially of a nitrogen-containing silane; and
 - a second silicon oxide layer disposed upon said first silicon oxide layer and upon said upper surface, said second silicon oxide layer being continuously adhered to said upper surface;
- wherein the passivation layer substantially covers the upper surface of the metallic structure in order to chemically protect about 1-1,000 atomic lattice layers thereof.

17. (Thrice Amended) A semiconductor structure comprising:

- an electrically conductive interconnect disposed within a first dielectric layer, said electrically conductive interconnect having an upper surface;
- a first passivation layer disposed upon said upper surface, said first passivation layer comprising a tungsten nitride compound;

a second passivation layer comprising multiple layers of nitrogen compounds adsorbed upon said first passivation layer according to Brunauer's Type V adsorption; and

an interlayer dielectric disposed upon said first dielectric layer and upon said upper surface, said interlayer dielectric being continuously adhered to said upper surface; wherein the first and second passivation layers substantially cover the upper surface of the interconnect in order to chemically protect about 1-1,000 atomic lattice layers thereof.

19. (Thrice Amended) An interconnect in an electronic device comprising:

a metallic first structure disposed within a first silicon oxide layer, said metallic first structure having an upper surface;

a first passivation layer disposed upon said upper surface, said first passivation layer comprising a tungsten nitride compound;

a second passivation layer comprising multiple layers of nitrogen compounds adsorbed upon said first passivation layer according to Brunauer's Type V adsorption; and

a second silicon oxide layer disposed upon said first silicon oxide layer and upon said upper surface, said second silicon oxide layer being continuously adhered to said upper surface;

wherein the first and second passivation layers substantially cover the upper surface of the interconnect in order to chemically protect about 1-1,000 atomic lattice layers thereof.

29. (Twice Amended) A semiconductor structure comprising:

an electrically conductive interconnect disposed within a first dielectric layer, said electrically conductive interconnect having an upper surface;

a passivation layer disposed upon said upper surface, said passivation layer comprising nitrogen; and

an interlayer dielectric disposed upon said first dielectric layer and upon said upper surface, said interlayer dielectric being continuously adhered to said upper surface; wherein the passivation layer substantially covers the upper surface of the interconnect in order to chemically protect about 1-1,000 atomic lattice layers thereof.

30. (Twice Amended) A semiconductor structure comprising:

an electrically conductive interconnect disposed within a first dielectric layer, said electrically conductive interconnect having an upper surface;

a first passivation layer upon said upper surface, said first passivation layer comprising a tungsten nitride compound;

a second passivation layer upon said first passivation layer, said second passivation layer comprising nitrogen; and

an interlayer dielectric disposed upon said first dielectric layer and upon said upper surface, said interlayer dielectric being continuously adhered to said upper surface; wherein the first and second passivation layers substantially cover the upper surface of the interconnect in order to chemically protect about 1-1,000 atomic lattice layers thereof.